

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2025

B.Tech-V Semester (CE)

COURSE CODE (CREDITS): 18B11CE515 (4)

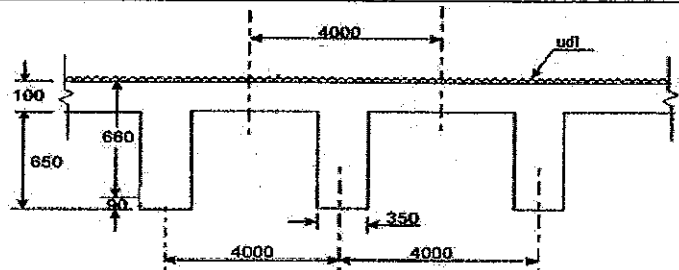
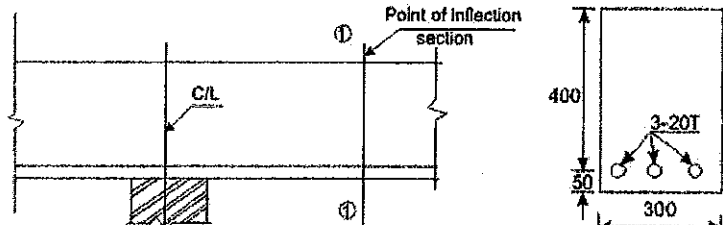
MAX. MARKS: 25

COURSE NAME: DESIGN OF CONCRETE STRUCTURES

COURSE INSTRUCTORS: Dr. Tanmay Gupta

MAX. TIME: 1 Hour 30 Min

*Note: (a) All questions are compulsory.**(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems, Use of scientific calculator and IS 456 is allowed.*

Q.No	Question	CO	Marks
Q1	 Design the flanged beam of given in following: $D_f = 100$ mm, $b_w = 350$ mm, spacing of beams = 4000 mm c/c, effective span = 12 m simply supported, cover = 90 mm, and imposed loads = 12 kN/m^2. Use Fe 415 and M 20.	2	8
Q2	Determine the ultimate moment capacity of the doubly reinforced beam of $b = 350$ mm, $d' = 60$ mm, $d = 600$ mm, $A_{st} = 2945 \text{ mm}^2$ (6-25 T), $A_{sc} = 1256 \text{ mm}^2$ (4-20 T), using M 20 and Fe 415.	2	6
Q3	Explain the four different cases of flanged beams in detail with neat figures and equations involved.	1	4
Q4	Name and explain the three different failure modes of reinforced concrete beams under the combined effects of bending moment and shear force.	3	3
Q5	Check the bond requirement of the continuous beam if the factored shear force is 200 kN at the point of inflection. Assume M 20 and Fe 415. 	3	4